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CASIS and the National Science Foundation Announce Joint Solicitation in Fluid Dynamics on the International Space Station

National Science Foundation Program Solicitation Number: 16-518

Kennedy Space Center, FL. (December 14, 2015) – The Center for the Advancement of Science in Space (CASIS) and the National Science Foundation (NSF) today announced a joint solicitation wherein researchers from the fluid dynamics community will have the ability to leverage resources onboard the International Space Station (ISS) U.S. National Laboratory. Up to $1.8 million will be awarded for multiple research investigations to support flight projects to the ISS National Laboratory.

Through this partnership, CASIS will facilitate hardware implementation and on-orbit access to the ISS National Laboratory. NSF will fund the selected projects to advance fundamental science and engineering knowledge. CASIS is the nonprofit organization responsible for managing and promoting research onboard the ISS National Laboratory. NSF supports transformative research to help drive the U.S. economy, enhance national security and maintain America's position as a global leader in innovation.

The unique high-quality and long-duration microgravity environment on the ISS National Laboratory has many benefits for the study of fluid dynamics processes and phenomena. Many processes that affect the behavior of fluids on Earth, such as thermal convection, sedimentation, hydrostatic pressure, and buoyancy, are absent in microgravity. The elimination of these variables allows phenomena of interest to be studied without gravitational interference.

Through this solicitation, CASIS and NSF seek proposals that will evaluate phenomena such as, but not limited to, capillary flow, diffusion, interfacial behavior, multiphase flow, separation, and surface tension. Studies in fluid dynamics could have significant applications for many industries, including consumer products, electronics, manufacturing, medical devices and pharmaceuticals, and oil and gas. All proposals must demonstrate a tangible benefit to improving life on Earth.

"Today's announcement with the National Science Foundation represents a major win for the ISS National Lab research community," said CASIS President and Executive Director Gregory H. Johnson. "As our Nation's most recognizable force for fundamental scientific and engineering inquiry, the National Science Foundation will help push the boundaries in fluid dynamics research using this unique innovation platform."

"NSF is thrilled to enable fluid dynamics research on the International Space Station National Lab," said Pramod Khargonekar, NSF assistant director for Engineering. "This is a first-of-its-kind opportunity for NSF to advance fundamental knowledge in the lab's unique microgravity environment, and to gain insights in fluid-flow

phenomena for innovations in Earth-based applications, such as the manufacturing of new materials and electronics, micro- and nanofluidics, drug delivery, consumer products and more."

Prior to submitting a full to proposal to NSF, all interested parties must submit a Preliminary Feasibility Review form to CASIS, which will determine the operational feasibility and economic merit of the proposed project. CASIS will notify the proposer of a passing or failing review score within 21 days of the Preliminary Feasibility Review form being submitted; therefore, CASIS strongly encourages interested parties to submit the review form no later than January 31, 2016. Only projects that pass the CASIS Preliminary Feasibility Review will be invited to submit a full proposal to NSF. The notification of a passing score must be included in the full proposal submission. NSF will close this grant solicitation on March 7, 2016.

Information on the CASIS Preliminary Feasibility Review can be found at:
http://www.iss-casis.org/Opportunities/Solicitations/FluidDynamics2015.aspx

To learn more about the on-orbit capabilities of the ISS, including past research initiatives and available facilities, visit: www.spacestationresearch.com

To learn more about the funding opportunity, view the full proposal solicitation via the Division of Chemical, Bioengineering and Environmental Transport (CBET) in the NSF Engineering Directorate.

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About CASIS: The Center for the Advancement of Science in Space (CASIS) was selected by NASA in July 2011 to maximize use of the International Space Station (ISS) U.S. National Laboratory through 2020. CASIS is dedicated to supporting and accelerating innovations and new discoveries that will enhance the health and wellbeing of people and our planet. For more information, visit www.iss-casis.org.

About the ISS National Laboratory: In 2005, Congress designated the U.S. portion of the International Space Station as the nation's newest national laboratory to maximize its use for improving life on Earth, promoting collaboration among diverse users, and advancing STEM education. This unique laboratory environment is available for use by other U.S. government agencies and by academic and private institutions, providing access to the permanent microgravity setting, vantage point in low Earth orbit, and varied environments of space.

About the National Science Foundation:
The National Science Foundation (NSF) is an independent federal agency, and the U.S. government's premier provider of funding for fundamental research in all non-medical fields of science and engineering. In fiscal year 2015, its budget is $7.3 billion. Each year, NSF supports about 11,000 new projects at nearly 2,000 colleges, universities and other institutions across the United States. NSF-funded researchers push the frontiers of science and engineering, leading to new knowledge, innovations and technologies for long-term American economic growth and prosperity. Learn more about the areas of research NSF supports, visit NSF.gov.

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